

Loess Soil Mystifies

Some Visitors



Compacted Dust

Most visitors to the Vicksburg area spend their time looking around instead of down. But those who do examine the area's soil are usually seeing something they've never seen before.

Loess (pronounced low-ess) soil is what composes Vicksburg's hills. It is a low-clay, low-sand soil that is the consistency of compacted dust -- because that's what it is.

Geologists think that swirling storms in prehistoric days ended with the deposits concentrated here. The only other place in the world with as much of the same type soil is in China.

To Escape the Relentless Shelling



Model of cave used during the siege of Vicksburg.

A tip-off to the unusual soil is provided when visitors notice roadsides with perpendicular cuts instead of slopes. The engineering reason behind this is simple. Loess soil is fairly stable when cut at 90 degree angles, but washes badly if it isn't -- at least until grass or other vegetation is rooted.

Loess is the most important geologic deposit in the Vicksburg area because almost all highway and facility construction activities occur within it. Loess is a unique geologic deposit consisting almost entirely of silt-sized grains dominated by the mineral, quartz. The loess is capable of sustaining steep slopes as high as 100 ft under certain conditions. But once it has been disturbed, loess becomes highly erodible by water, forming deep gullies and pipes. Extensive new construction along the Mississippi riverfront at Vicksburg has required concerted reinforcing and stabilization efforts to prevent movement of the bluffs along a prominent failure scarp. The historical town of Grand Gulf, 20 miles south of Vicksburg, was abandoned because erosion of the loess bluffs destroyed the town site.

The loess deposits are, of course, the core of the city's natural defenses and made the area attractive to French and Spanish settlers. Later, Vicksburg's defenders during the Civil War had such a natural advantage that conquering the city could not be achieved by a direct assault, despite the fact Rebel forces were greatly outnumbered. To escape relentless shelling from Federal artillery during the 47-day siege, many citizens of Vicksburg took refuge underground, digging caves into hillsides of loess soil. Single family caves had only one or two rooms, while others were huge and accommodated as many as 200. To avoid entrapment and induce air circulation caves often had several entrances.

Time and modern earth-moving equipment have leveled a lot of the area's hills and gullies -- but much of the natural terrain remains. It is especially visible during a tour through the Vicksburg National Military Park.